

REMARKS**I. Rejection of Dependent Claims 9 to 13 for Lack of Enablement**

Claims 9 to 13 were rejected under 35 U.S.C. 112, first paragraph, for lack of enablement. Claims 9 to 13 have been canceled to reduce the issues and expedite prosecution. Cancellation of these claims obviates their rejection under 35 U.S.C. 112, first paragraph.

II. Added Subject Matter to the Specification

A paragraph has been added to the specification containing the subject matter of the canceled claims 9 to 12. This subject matter describes other embodiments of the claimed invention, which are not currently claimed in the claims due to cancellation of claims 9 to 12. The additional paragraph does not add "new matter", because this subject matter was present in the originally filed application in dependent claims 9 to 13.

However since the subject matter of claims 9 to 13 is no longer being claimed, it is not necessary for the specification to provide a complete description that enables one to make and/or use the embodiment of the invention described generally in the added paragraph.

Furthermore since the features of the embodiments of the novel cook top

described in the new paragraph added to the specification are no longer included in the claims, it is not necessary to add additional illustration showing these features in accordance with Rule 84.

III. Indefiniteness Rejection of Claim 1

Claim 1 was rejected under 35 U.S.C. 112, second paragraph, for indefiniteness.

The term "pre-stressed special glass" in claim 1 was the basis for this indefiniteness rejection. A similar term is also used in the new independent claim 15, namely "pre-stressed glass".

The term "special glass" is a well-known term in the glass arts. It means "glass" that is specially adapted to a particular application by tailoring its properties through control of the composition of the glass batch.

Similarly the term "pre-stressed glass" is also well known in the art. Basically it means "tempered" or "toughened" glass. Flat glass as is well known has a tendency to break or crack, even under comparatively light loads. However special thermal or chemical treatments of ordinary flat glass can produce a pre-stressed glass that is more breakage or crack resistant.

An information disclosure statement together with a copy of pages 76 and 121 of "Schott Guide to Glass" by H.G. Pfaender accompanies this amendment. These pages include a definition of "pre-stressed glass" and "special glass".

Also please note that the term "prestressed special glass" appears in

paragraph 42 of the Wenneman U.S. Published Patent Application that is one of the references, on which the rejection under 35 U.S.C. 103 (a) is based. Also this term appears in line 3 of claim 1 of this reference.

The metes and bounds of the term "pre-stressed glass" are sufficiently definite. This term would be understood to mean any glass that has been subjected to a thermal or chemical treatment so that it is more resistant (at least to some extent) to breakage, for example due to induced mechanical and thermal stresses. Only some pre-stressing is required by claim 1; this is not the case of a relative term. Claim 1 does not claim a cook top that is made with a glass panel that is not pre-stressed.

Furthermore it is important to use the term "pre-stressed special glass" in the claim in order to particularly point out and distinctly claim the cook top (MPEP 2173). There are many types of glass. A cook top would not be made of any other type of glass but pre-stressed special glass because it is subjected to repeated thermal and mechanical stresses (a pot or utensil can be dropped inadvertently on the cook top and also thermal stresses can be the result from rapid heating or cooling events, like when cold liquid is inadvertently spilled on a heated part of the cook top).

It should be noted that claim 1 was amended for other reasons to avoid the prior art.

For the foregoing reasons withdrawal of the rejection of amended claim 1 under 35 U.S.C. 112, second paragraph, for indefiniteness is respectfully requested.

IV. Obviousness Rejections of Claim 1 and Dependent Claims

Claims 1 to 10 and 14 were rejected as obvious under 35 U.S.C. 103 (a) over Beyrlé, in view of Wennemann, et al, and further in view of Beunet, et al.

The amended claim 1 above requires that the IR permeable undercoat on the transparent colorless glass or glass ceramic panel is observation-blocking (opaque to visible radiation). Also according to the amended claim 1 the undercoat is stable up to at least 600°C and the cook top has a strength that is not reduced or only insignificantly reduced by the presence of the undercoat.

It is the object of the present invention to produce a glass/glass ceramic cook top with the aforesaid properties, as explained on page 4, line 16 to 23, of applicant's specification. Coatings for glass/glass ceramic articles are of course known in the art. Some conventional paints used to provide such coatings are known to either reduce the strength of the cook top or do not sufficiently block observation of parts below the cook top. Only when enamel paint with the proportions of glass flux and inorganic pigment according to the amended claim 1 is used will the resulting coating attain the objects of the present invention. The undercoat of the invention must include at least 70 percent by weight inorganic pigment as claimed in amended claim 1.

Beyrlé does describe a method of enameling glass or glass-ceramic substrates with an enamel composition containing graphite as a component in order to improve the mechanical properties of the substrate and decrease

adhesion to the coating surface (see abstract).

Column 4, lines 44 to 55, of Beyrlé teach that the enamel coating of Beyrlé may comprise *up to 70 %* by weight pigment instead of the usual prior art upper limit of 35 % by weight because of the presence of graphite in the enamel, which prevents the otherwise occurring weakening in the mechanical properties including strength.

On the other hand, Beyrlé does not disclose an example of a cook top including a glass-ceramic or glass panel, which is transparent and which has a coating of the disclosed enamel on it. Beyrlé only discloses that the enamel composition can be applied to glass-ceramic or glass panels for cook tops generally and also to other glass-ceramic or glass articles.

Furthermore in addition to the application of the enamel coating to a cook top, Beyrlé does disclose that their enamel composition can be provided on glass for windows, such as automobile sunroofs. Thus obviously in those applications the enamel composition of Beyrlé is not opaque enough to block observation through the window (see column 3, lines 53 to 67; also column 6, lines 14 to 22).

In summary, Beyrlé does not disclose the following features of claim 1:

- (1) that the enamel coating is provided on the underside of a cook top;
- (2) that it is IR permeable;
- (3) that it is opaque in the visible range so that it is observation blocking;
and
- (4) that the strength of the enameled article is not reduced under heat load.

Wennemann, et al, claim a transparent glass ceramic panel provided with an IR permeable undercoat that is plain colored and blocks observation. However Wennemann, et al, do not disclose any enamel coating compositions. Wennemann, et al, do disclose various classes of coating compositions and paints for use as the undercoat. There is no teaching in Beyré that the enamel composition described is observation-blocking and in fact there is teaching of the opposite, namely that the coating can be used on glass surfaces of automobile sunroof windows, which of course pass visible light in column 3, lines 52 to 67 of Beyré. Also there is no teaching in Beyré that the enamel paint is transparent to infrared radiation.

A modification of a coating or enamel paint described in one prior art reference in which some of the properties of the paint are retained while other properties are selected from the coating of another prior art reference would not be a reasonable modification under 35 U.S.C. 103 (a), because there is no way to transfer a property of the coating of one composition described in one prior art reference to the coating of another prior art reference, which has a different composition.

Beunet, et al, do teach a borosilicate glass frit that could be used in the enamel of Beyré instead of the disclosed glass frit. However in the case of both these prior art references the resulting enamel coating is required to have a comparatively low pigment content and thus would not have the required observation blocking properties and panel strength.

Beunet, et al (column 2, lines 40 to 45, and claim 1) teaches that their

enamel coating composition has a content of 10 to 35 % by weight pigment and thus 65 to 90 % by weight of the glass frit in contrast to the at least 70 % by weight pigment in the applicant's claimed enamel coating. According to Beyrlé their enamel composition must not contain *more than* 70 % by weight inorganic pigment and Beyrlé teaches that they can achieve concentrations of up to 70 % of pigment in the enamel composition while still maintaining the mechanical properties of the coated glass or glass ceramic article, such as bending strength, only by including graphite in it.

Beyrlé thus teaches the opposite from claim 1 since the amended claim 1 teaches an enamel coating with from 70 to 99 % pigment.

The main distinguishing feature of amended claim 1 and new claim 15 is the stated ratio range for the ratio of the amount of glass flux to the amount of coloring inorganic pigment in the enamel paint that is used to produce the undercoat. These claims of the applicant require at least 70 % by weight of pigment. Beyrlé requires that the amount of pigment should be no more than 70 % by weight. Beunet requires that it should be 35 % by weight at maximum.

It is well established that a prior art reference that teaches the opposite from the claimed invention, especially the opposite of the critical distinguishing feature, should not be combined with other prior art references to reject the claimed invention under 35 U.S.C. 103 (a). See M.P.E.P. 2145. For example, the Federal Circuit Court of Appeals has said:

“In determining whether such a suggestion [of obviousness] can fairly be gleaned from the prior art, ...It is indeed pertinent that these references teach against the present invention. Evidence that supports, rather than

negates, patentability must be fairly considered." *In re Dow Chemical Co.*, 837 F.2nd 469, 473, 5 U.S.P.Q.2nd 1529, 1532 (Fed. Cir. 1988)

Beunet, et al, clearly teaches the opposite from the claimed invention because Beunet, et al, requires the percentage of pigment in the coating to be 35 percent by weight or less. Both claims 1 and 15 require at least 70 % by weight of pigment.

Also Beyrlé teaches that the pigment should be present in an amount that is no more than 70 % by weight and then only if graphite is used to maintain the mechanical properties. Since the amount of pigment in the applicant's coating is in a range of 70 % by weight or greater, Beyrlé teaches away from the claimed invention also.

Furthermore dependent claims 2 and 16 require that the applicant's undercoating contain even more pigment, namely 80 % by weight, which is well beyond the upper limit of 70 % by weight according to Beyrlé, column 4, lines 44 to 55.

Properties of different coatings from different prior art references clearly cannot be mixed while making a rejection under 35 U.S.C. 103 (a) because a composition cannot be separated from its properties; the composition determines its properties. Thus one cannot assume that the viewing blocking properties of Wennemann are obtained if the coatings of Beyrlé and/or Beunet, et al, are applied to the transparent glass or glass ceramic panel of Wennemann.

If the coatings of Beyrlé and/or Beunet, et al, are applied to the transparent glass or glass ceramic panel of Wennemann, they will have coating

properties as described in Beyrlé and/or Beunet, et al, but not necessarily any of the coating properties of Wennemann, since Wennemann does not disclose the specific coating compositions of these other references. Neither Beyrlé and/or Beunet, et al, teach that their coatings are "observation-blocking" for parts below the cook top (i.e. sufficiently opaque). In fact, as noted above the teaching of Beyrlé for auto glass windows suggest the opposite.

Thus one skilled in the art would not find a hint or suggestion in these references that an undercoat that satisfies all the objects of the present invention, including observation blocking, heat resistance and mechanical strength, as claimed in amended claim 1 and new claim 15, could be made by applying a coating of Beyrlé, or Beyrlé as modified by Beunet, et al, to the glass or glass ceramic panel of Wenneman.

For the foregoing reason and because of the changes in claim 1, withdrawal of the rejection of amended claims 1 to 8 and 14 under 35 U.S.C. 103 (a) over Beyrlé, in view of Wennemann, et al, and further in view of Beunet, et al, is respectfully requested.

Claims 1 to 9 and 14 were rejected as obvious under 35 U.S.C. 103 (a) over Beyrlé, in view of Comte, et al, and further in view of Beunet, et al. The subject matter of Beyrlé and Beunet, et al, has been discussed above.

Comte, et al, discloses the composition of a precursor glass for a transparent glass ceramic panel or article. Of course one could imagine that a coating could be applied to the glass ceramic article after it is prepared from the precursor glass. Comte, et al, does not teach or suggest anything further

regarding the composition or properties of the coatings that can be applied to the glass ceramic article.

Applicant's claim 1 has now been amended to clearly limit the undercoat made with an inorganic enamel paint that blocks observation through the transparent glass or glass ceramic panel.

As noted above the coatings of Beyrlé are used on automobile sunroof windows in some applications and thus not limited to observation blocking

coatings (column 3, lines 53 to 67) as required by the applicant's amended claim

1. In order to block observation the percentage of pigments in the coating must be high and in applicant's amended claim 1 the required percentage of pigments is at least 70 % by weight, while Beyrlé states that 70 % by weight of pigment is the maximum amount of pigment that can be included in their enamel coating (column 4, lines 44 to 55). The high percentage of pigment in the applicant's preferred embodiments, e.g. in claim 2, makes it certain that the applicant's coating blocks observation of parts underneath the cook top.

In view of the teaching in column 4 of Beyrlé it is surprising that an undercoat could be provided with such large amounts of pigment in it as claimed in applicant's amended claim 1 without impairing the mechanical properties of the cook top. However good mechanical bending strength is obtained in accordance with amended claim 1.

Furthermore Beaunet, et al, teach against such large amounts of pigment in the undercoat and thus cannot be combined with the other references under 35 U.S.C. 103 (a) to reject amended claim 1.

Also there is no suggestion for one of ordinary skill in the art in the prior art that employing the glass frit with the composition of Beunet, et al, in the enamel paint of Beyrlé will produce a cook top having an undercoat that attains all objectives of the claimed invention, i.e. an undercoat that is observation blocking, stable under heat load up to at least 600°C and has sufficient strength under heat load, as now claimed in amended claim 1 and new claim 15.

For the foregoing reason and because of the changes in claim 1, withdrawal of the rejection of amended claims 1, 2, 4 to 8 and 14 under 35 U.S.C. 103 (a) over Beyrlé, in view of Comte, et al, and further in view of Beunet, et al, is respectfully requested.

V. Obviousness Rejections of Claims 11 to 13

Claim 10 stands rejected as obvious under 35 U.S.C. 103 (a) over Beyrlé, in view of Comte, et al, and further in view of Beunet, et al, and further in view of Wennemann, et al.

Claim 11 stands rejected under 35 U.S.C. 103 (a) over Beyrlé in view of Wennemann, et al, and further in view of Beunet, et al, and further in view of Nass, et al.

Claims 11 stands rejected as obvious under 35 U.S.C. 103 (a) over Beyrlé, in view of Comte, et al, and further in view of Beunet, et al, and further in view of Nass, et al.

Claims 12 and 13 were rejected under 35 U.S.C. 103 (a) over Beyrlé, in

view of Wennemann, et al, and further in view of Beunet, et al and Schultz, Jr.

Claims 12 and 13 were rejected as obvious under 35 U.S.C. 103 (a) over Beyrle, in view of Comte, et al, and further in view of Beunet, et al, and Schultz, Jr.

The foregoing '03 rejections have been obviated by cancellation of claims 10 to 13.

VI. New Claims 15 to 21

New claims 15 to 21 have been filed above. New independent cook top claim 15 has somewhat different distinguishing limitations than amended claim 1.

However the primary distinguishing limitation in claim 15 is also the ratio of inorganic pigment to lead-free glass flux in the inorganic enamel paint used to provide the undercoat. Inorganic enamel paint with the high proportion of pigment claimed in claim 15 will be observation-blocking as claimed in claim 1. Thus the reasons for allowance of the new claims 15 to 21 over the prior art references cited above are the same as the above basic arguments to withdraw the obviousness rejections of claim 1.

In addition instead of the heat-resistance and strength limitations in claim 1 independent claim 15 includes the limitation that the glass flux is lead-free and that it comprises a glass with a thermal expansion coefficient less than or equal to $4 \times 10^{-6} \text{ K}^{-1}$. The lead-free limitation is based on the glass flux compositions

described on page 8, line 20 and following in applicant's specification. The thermal expansion coefficient limitation is disclosed on page 6, line 5, of applicant's specification. This small thermal expansion coefficient value is necessary to avoid thermal stresses in the composite consisting of the enamel paint undercoat and glass or glass ceramic panel. Because of that the strength of cook top is maintained in operation. Graphite surprisingly does not need to be included in the inorganic enamel paint as in Beyrlé in order to provide a cook top with adequate mechanical properties, which is observation-blocking. Also dependent claim 21 recites glass flux compositions with ingredients and associated concentration ranges.

Beyrlé teaches the opposite from a lead-free glass flux in column 5, line 64, and column 6, line 49. Beyrlé would lead one skilled in the art away from the claimed invention.

There is no suggestion in the prior art that an inorganic enamel paint of Beyrlé that is made with a glass frit with the composition disclosed in Beunet, et al, will have the adequate observation blocking properties, while at the same time have the desired mechanical properties including strength under load (operation of the cook top at high temperatures). In other words, there is no suggestion of the desirability of combining Beunet, et al, with Beyrlé in the art.

Predictability is lacking here – without the applicants' specification as a guide – as far as the more limited amended claim 1 and new claim 15 are concerned. The argument regarding combination Beunet, et al, with Beyrlé is an obvious-to-try argument, which is of a type that is consistently rejected by U.S.

courts.

There is no suggestion for one of ordinary skill in the art in the prior art that employing the glass frit with the composition of Beunet, et al, in the enamel paint of Beyrlé will produce a cook top having an undercoat that attains all objectives of the claimed invention, i.e. an undercoat that is observation blocking, stable under heat load up to at least 600°C and has sufficient strength under heat load, as now claimed in amended claim 1 and new claim 15.

For the foregoing reasons it is respectfully submitted that new claims 15 to 21 should not be rejected under 35 U.S.C. 103 (a) over Beyrlé and any combination of the secondary references, Wennemann, et al; Comte, et al, Beunet, et al.

VII. Certified Copy of the Priority Document

The Office Action stated on page 2 that the Official Certified Copy of the Priority Document was not filed in the USPTO. However the records in our file show that a Certified Copy of the Priority Document was sent to the USPTO on December 19, 2003 together with joinder papers, which were required because the application was initially filed without signature. A copy of the transmittal letter that was sent with the joinder papers is attached to this amendment. Please let us know if the Certified Copy of the Priority Document is defective or has not been filed in the U.S. Patent Office, in which case a request will be sent to the applicants for an additional copy.

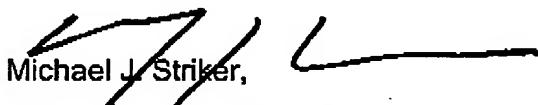
VIII. Information Disclosure Statement

Consideration of the Information Disclosure Statement filed August 10, 2005 and the references filed with it is respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549 4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,


Michael J. Striker,
Attorney for the Applicant
Reg. No. 27,233